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SUBMITTED ELECTRONICALLY

June 12, 2019

Marlene H. Dortch, Secretary
Federal Communications Commission
Office of the Secretary
445 12th Street, SW
Washington, D.C. 20554

Re: *Ex Parte Communication*, ET Docket No. 13-49, GN Docket No. 18-357

Dear Ms. Dortch:

The Alliance of Automobile Manufacturers ("Auto Alliance" or "Alliance")[1] submits this *ex parte* letter to the Federal Communications Commission ("FCC") Office of Engineering and Technology to express the urgent need for certainty in the 5.850-5.925 GHz spectrum band ("5.9 GHz band") to ensure that intelligent transportation systems ("ITS") and vehicle-to-everything ("V2X") technologies are able to operate in the 5.9 GHz band free from harmful interference.

Background

Operations in the 75 MHz of spectrum in the 5.9 GHz band allocated by the FCC for transportation safety applications, are governed by service rules documented in the FCC's Report and Order in 2004[2] and amended in 2006.[3] Using these rules, the United States ("U.S.") Department of Transportation ("DOT") and its industry partners, test partners, test bed operators, and other stakeholders have performed rigorous research, analysis, prototype and product development and testing, and deployment of dedicated short range communications ("DSRC") technologies, applications, and standards. When this spectrum was allocated, only DSRC technology was equipped with the essential attributes capable of providing secure, low latency, wireless mobile data communications that could support safety-critical messages for collision avoidance. Since then, other V2X technologies have

[1] The Auto Alliance is the leading representative for the auto industry. Its members include BMW Group, FCA US LLC, Ford Motor Company, General Motors Company, Jaguar Land Rover, Mazda, Mercedes-Benz USA, Mitsubishi Motors, Porsche, Toyota, Volkswagen Group of America and Volvo Cars North America, and represent approximately 70 percent of all car and light truck sales in the United States. For further details, see http://www.autoalliance.org/.
[2] *See* FCC Report and Order, FCC 03-324 in the Matter of WT Docket No. 01-90, ET Docket No. 98-95, Federal Communications Commission (February 10, 2004).
[3] *See* FCC Memorandum Opinion and Order, FCC 06-110 in the Matter of WT Docket No. 01-90, ET Docket No. 98-95, Federal Communications Commission (July 26, 2006).

emerged, including cellular vehicle-to-everything ("C-V2X"). As was done with DSRC, the U.S. DOT has continued to work diligently and collaboratively with the automotive industry and other private and public sector stakeholders to develop and evaluate new cooperative technologies and equipment for V2X applications.

A critical assumption in the U.S. DOT's and industry's development of DSRC-based technologies and applications was that spectrum sharing of the 5.9 GHz band with unlicensed users was not intended, and regulatory certainty would be provided by the FCC to allow a decade of research, testing, product development and deployment of safety-critical technology to mature and progress. Unfortunately, this assumption has not held true, as repeated spectrum sharing proposals by the FCC have induced ongoing uncertainty within the 5.9 GHz band.

Various Unlicensed Spectrum Sharing Proposals Have Perpetuated Uncertainty in the 5.9 GHz Band

In 2015, a National Academies of Sciences committee tasked with conducting an independent peer review of a Report to Congress describing the status of DSRC technology and applications, asserted that proposed spectrum sharing in the 5.9 GHz band posed "the most serious risk and uncertainty" to DSRC.[4] The committee further noted that, unless Wi-Fi and other unlicensed and licensed technologies were determined not to interfere with DSRC, the potential benefits of the 5.9 GHz band would be severely compromised.[5] These findings were released not long after FCC's 2013 rulemaking proposing sharing in the 5.9 band with Unlicensed National Information Infrastructure ("U-NII") devices.[6] Recognizing the demand for spectrum resources and the importance of protecting transportation safety applications operating in the 5.9 GHz band, Senator John Thune, Chairman of the Senate Committee on Commerce, Science, and Transportation, spearheaded a letter[7] to the heads of the FCC, U.S. Department of Commerce ("DOC"), and U.S. DOT urging them to collaborate to determine the possibility of allowing unlicensed operations in the 5.9 GHz band.

Subsequently, in 2016, the FCC announced a three-phase plan to test prototypes of U-NII and DSRC devices to determine whether they could co-exist in the 5.9 GHz band without causing harmful interference to DSRC services utilizing two sharing proposals,

[4] U.S. Department of Transportation (July 2015). Status of the Dedicated Short-Range Communications Technology and Applications, Report to Congress, Appendix J, Executive Summary, FHWA-JPO-15-218.
[5] *Id*.
[6] *See* In the Matter of Revision of Part 15 of the Commission's Rules to Permit Unlicensed National Information Infrastructure Devices in the 5 GHz Band, *Notice of Proposed Rulemaking*, ET Docket No. 13-49, Federal Communications Commission (2013).
[7] Letter from Senators John Thune, Cory A. Booker, and Marco Rubio to Anthony Foxx, Secretary, U.S. DOT, Penny Pritzer, Secretary U.S. Department of Commerce, and Tom Wheeler, Chairman, FCC (September 9, 2015).

"detect and vacate" and "re-channelization" interference mitigation strategies.[8] FCC's public notice invited submittal of prototype devices to an OET Laboratory for use in the Phase I testing. The Alliance and other stakeholders provided prototype devices to evaluate the "detect and vacate" proposal. Test results from the three-phase plan were to be completed and submitted by January 15, 2017.[9] In the same proceeding announcing its test plan, the FCC sought additional comments regarding shared use of the 5.9 GHz band, and invited interested parties to update and refresh the record on its 2013 rulemaking.

Six years have passed since the FCC's initial rulemaking proceeding to allow sharing in the 5.9 GHz band, and Phase I test results were just recently released in late 2018. Now, in May 2019, FCC Chairman Ajit Pai, in his remarks to the Wi-Fi World Congress, shared that the FCC plans to once more assess the 5.9 GHz band with a new rulemaking proceeding seeking comment on various proposals for the band's future.

When developers and implementers of V2X technologies make investment decisions, they require assurance that prospective unlicensed sharing of the spectrum band dedicated for V2X communications will not jeopardize safety-critical applications. Auto manufacturers have consistently shared this fact with the FCC, and have repeatedly called for the Commission to resolve the uncertainty regarding operation of V2X technologies in the 5.9 GHz band. Various unlicensed sharing proposals for the 5.9 GHz spectrum band have posed a serious regulatory impediment to the development and deployment of V2X technologies. As a result of continued lack of clarity about unlicensed spectrum sharing in the 5.9 GHz band, planned deployments of V2X technologies have been halted, and the future of the 5.9 GHz band for ITS applications remains unpredictable.

The FCC Must Complete All Phases of Its Three-Phase Test Plan

FCC policies regarding changes to the 5.9 GHz band should be fact-based and data driven. Therefore, the Alliance strongly encourages the FCC, in collaboration with the U.S. DOT and the National Telecommunications and Information Administration ("NTIA"), to complete expeditiously Phase II and Phase III of its three-phase testing plan. This interdependent testing will provide requisite data needed for meaningful comparison and evaluation, and help determine how best to proceed with interference-avoidance and allocation of spectrum use rights in the 5.9 GHz band. The inability to complete this interference testing to determine the viability of allowing unlicensed devices to share the spectrum in the 5.9 GHz band with the incumbent designated uses supporting automotive safety, only heightens and perpetuates the uncertainty that impedes investment in the development and deployment of V2X technologies. This is a disservice to all Americans, particularly those who will be injured in motor vehicle crashes that could be prevented.

[8] *See* The Commission Seeks to Update and Refresh the Record in the "Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band" Proceeding, ET Docket No. 13-49, *Public Notice*, FCC 16-68 (June 1, 2016).
[9] Id. at 11.

Potential decisions regarding lifesaving technologies are at stake in the 5.9 GHz band. We strongly oppose the FCC relying only on limited Phase I laboratory test results for decision making in any upcoming proceeding regarding sharing in the 5.9 GHz band. Findings in FCC's Phase I testing report stipulate that both sharing proposals (detect and vacate and re-channelization) are able – in a limited laboratory testing setting – to successfully detect a DSRC signal and implement post detection steps as initially proposed. However, the FCC noted that Phase I only investigated the feasibility of the two proposed interference mitigation strategies in a *controlled* laboratory environment and *not* in an outdoor setup representing real life scenarios.[10] Additionally, we feel it is important to emphasize that in its Phase I test results, the FCC observed that re-channelization affords a higher probability of transmission to DSRC devices during co-channel operation, and that there are also potential risks of interference during adjacent channel operation for both sharing proposals.[11]

Complete results from this three-phase test plan must inform the FCC's upcoming assessment of the 5.9 GHz band. Auto manufacturers understand the FCC's mission to maximize use of the public's airwaves, and accepts that unlicensed devices might operate in the 5.9 GHz band. However, until the joint FCC, DOT and NTIA testing under Phase II and Phase III is completed, it would be premature to make a judgment about reallocating this safety-critical spectrum. Only when Phase II and Phase III testing is complete, and if rigorous testing demonstrates that no harmful interference shall occur to incumbent V2X technologies, should the FCC seek notice and comment on various unlicensed sharing proposals for the future of the 5.9 GHz band. The FCC and DOT should move directly and expeditiously to complete this testing as soon as possible, within 2 to 3 years or less.

Additionally, we strongly encourage the FCC and DOT to add emerging V2X technologies, such as C-V2X, to its testing plan to study compatibility of unlicensed use with C-V2X in addition to DSRC, as soon as possible. Autotalks, and others, recently announced the development of a single automotive-qualified chipset that offers dual-mode functionality to support both DSRC and C-V2X.[12] Leveraging this new innovation could help to expedite interference testing of C-V2X alongside current DSRC testing.

The FCC Should Refrain From Seeking Notice and Comment on Unlicensed Sharing Proposals Until All Three Phases of Its Test Plan Are Expeditiously Completed

The FCC should take immediate action to provide the certainty that the Alliance seeks for the 5.9 GHz spectrum band for the benefit of the traveling public. The lack of clarity or a formal declaration by the FCC that the 5.9 GHz spectrum band shall and will be free from harmful interference from unlicensed devices operating in the band, has impeded

[10] Laboratory Division of the FCC Office of Engineering and Technology, Phase I Testing of Prototype U-NII-4 Devices, Report: TR 17-1006 (October 22, 1018), Page 94.
[11] *Id*. at 94-95, 97.
[12] https://www.auto-talks.com/autotalks-launches-the-worlds-first-global-v2x-solution-unifying-dsrc-and-c-v2x-on-its-deployment-ready-chipset/

the automotive industry's ability to develop and deploy life-saving V2X technologies. As a matter of public policy, safety of life communications made possible by connectivity, must take priority over non-essential operations such as streaming videos on personal phones and wireless devices. Approximately two million people are injured each year in the U.S. due to motor vehicle crashes.[13] Annually, these crashes cost the U.S. economy an estimated $836 billion.[14] By providing drivers with timely warnings of impending crash situations, V2X technology could potentially reduce the number and severity of motor vehicle crashes, thereby reducing the losses and costs to society that would have resulted from these crashes.[15] With 37,133 deaths on U.S. roadways in 2017 alone, we must take every opportunity to save the lives of road users, especially since U.S. DOT data has shown that human error and choice are critical factors in over 94% of motor vehicle crashes.[16]

In an October 24, 2018 public statement,[17] the U.S. DOT expressed that preserving the 5.9 GHz band for transportation communications is essential to public safety today and in the future. According to the U.S. DOT, more than 70 active deployments of V2X communications with thousands of vehicles are already on the road, and this technology has the potential to improve infrastructure, safety, and efficiency as the Department works to make road travel and future transportation significantly safer. These deployments have been enabled by investments by states and cities, infrastructure owners and operators, and vehicle manufacturers, all of which rely on the availability of the 5.9 GHz spectrum band to operate. These, and other ongoing investments in the safety of our nation's roadways, would be wasted if the FCC reallocates the 5.9 GHz spectrum band for unlicensed use prior to completion of the outstanding test phases.

In addition to saving lives, V2X technologies hold the promise to provide other numerous economic, environmental, and societal benefits, such as decreased fuel consumption and carbon emissions, increased productivity and congestion mitigation; a significant issue on our nation's roadways. Traffic jams cost the country $87 billion in lost productivity in 2018.[18] Our driving public values increased traffic efficiency, shorter commutes and time saved. Additionally, connectivity will enhance future mobility, such as automated vehicles, and increase the country's competiveness as the nation evolves towards a truly integrated transportation system that is safer, faster and more efficient.

The Alliance strongly urges the FCC to provide much needed certainty in the 5.9 GHz spectrum band. We request that the FCC refrain from seeking notice and comment on sharing proposals to reallocate this safety-critical spectrum for non-safety-related,

[13] https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812580
[14] *See* DOT HS 812 013, NHTSA, 2015
[15] *See* Docket No. NHTSA-2016-0126, V2V NPRM
[16] *See* Critical Reasons for Crashes Investigated in the National Motor Vehicle Crash Causation Survey (February 2015), *available at* https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812115
[17] https://www.nhtsa.gov/press-releases/us-department-transportations-national-highway-traffic-safety-administration-issues
[18] https://www.cnbc.com/2019/02/11/americas-87-billion-traffic-jam-ranks-boston-and-dc-as-worst-in-us.html

unlicensed Wi-Fi purposes until: (i) all three phases of its test plan are completed, and (ii) the results clearly indicate that sharing with unlicensed devices can occur without harmful interference to the incumbent technologies or other V2X technologies operating in the 5.9 GHz band. At such time that this certainty is provided to the automotive industry, build-out requirements will be developed to incentivize and accelerate investment and deployments of V2X technologies.

In addition to the FCC providing the certainty that we seek for the 5.9 GHz spectrum band, we anticipate that during the FCC's upcoming assessment of the 5.9 GHz band, the FCC will review and make a determination concerning the 5G Automotive Association's ("5GAA") waiver petition whether to allow increased utilization in the upper portions of the 5.9 GHz band (Channels 182-184) for C-V2X.

Respectfully submitted,

David Schwietert,
Interim President and CEO
Alliance of Automobile Manufacturers